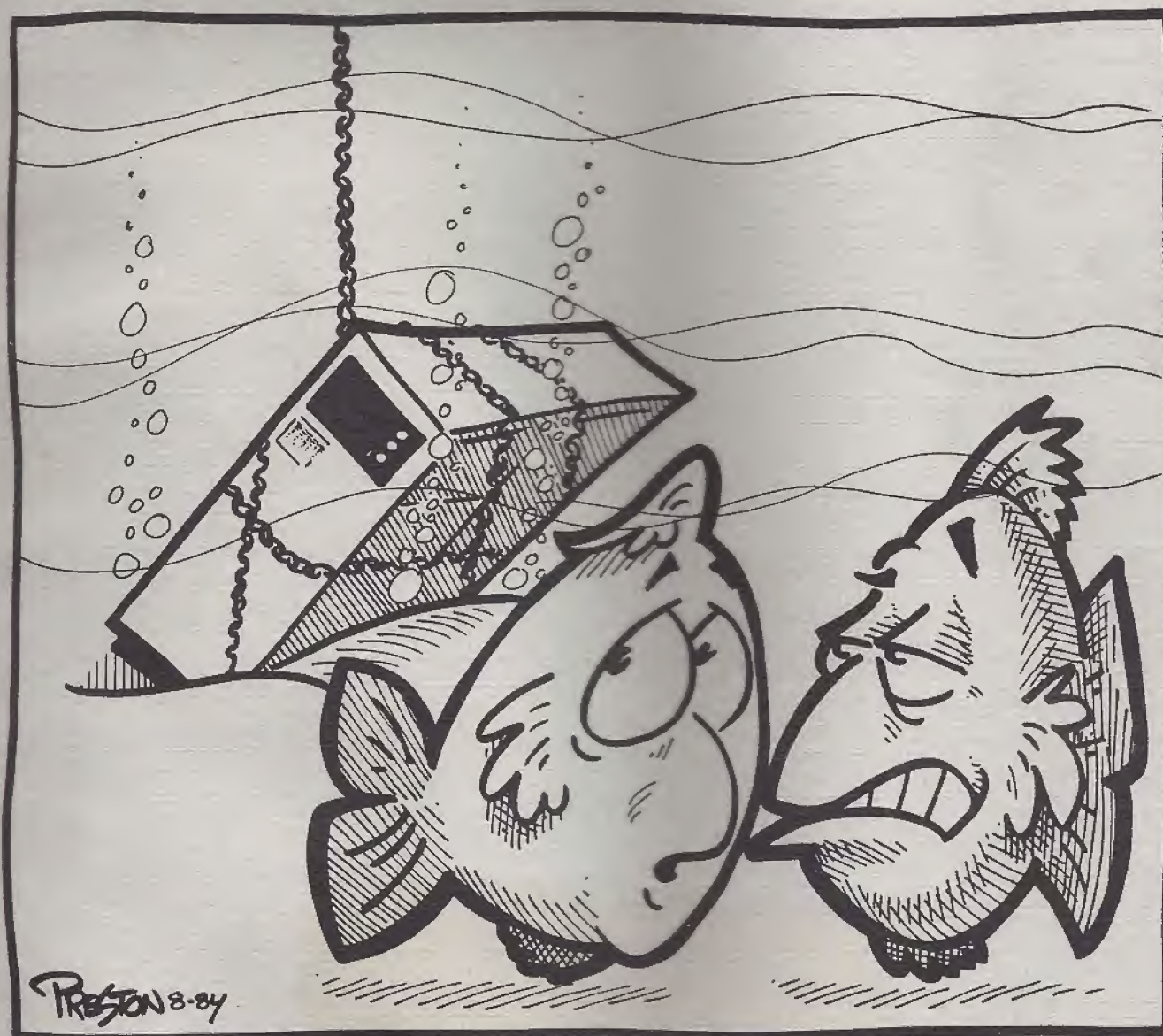


\$1.50

ENERGY = MC^2 ...THE MICHIGAN COMPUTER CONSORTIUM MAGAZINE

ISSN: 0740-2759

SEPTEMBER 1984



SOMEBODY HAS EXPENSIVE TASTES IN BOAT ANCHORS!

AT PERRY COMPUTERS, WE SELL COMPUTERS AT PRICES YOU CAN'T RESIST



Today you want a computer system that is reliable, powerful, and compatible, but most importantly, affordable.

Perry Computers offers five lines of computers that provide these characteristics, at prices you've been waiting for.

Sanyo
Epson
Franklin
Columbia
Radio Shack

Perry Computers is a complete computer retail store, carrying computer systems, hardware, software, and peripherals.

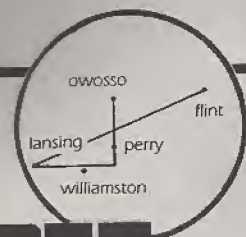
If you are stepping up to a more powerful system, expanding, or starting up your unit, be sure you see our products and prices.

FOR INFORMATION
call 517-625-4161

SPECIAL OF THE MONTH

Perry Computers will offer monthly specials in this computer ad. Watch for them.

- **SKC DISKETTES**
 - SS/DD (Single Sided-Double Density) \$ 17.00/10 pack
 - DD/DD (Double Sided-Double Density) \$ 22.00/10 pack
- **EPSON RIBBONS (80 Series Printers)** \$ 5.99
- **CLOSE-OUT** on all selected software, up to 70% off
- **DMP-110 PRINTER DOT MATRIX** \$299.00
- **OS-9 COLOR COMPUTER OPERATING SYSTEM** \$ 68.00
- **EPSON Q-X 10 PERSONAL COMPUTER**
(call for special)



PERRY COMPUTERS

137 NORTH MAIN

■ P.O. BOX 156

■ PERRY, MICHIGAN 48872

■ 1-517-625-4161

AUGUST 1984
 SU MO TU WE TH FR SA
 1 2 3 4
 5 6 7 8 9 10 11
 12 13 14 15 16 17 18
 19 20 21 22 23 24 25
 26 27 28 29 30 31

CONSORTIUM CALENDAR

SEPTEMBER 1984

OCTOBER 1984
 SU MO TU WE TH FR SA
 1 2 3 4 5 6
 7 8 9 10 11 12 13
 14 15 16 17 18 19 20
 21 22 23 24 25 26 27
 28 29 30 31

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
	2 Labor Day	3	4 CHAOS BASIC SIG	5 M3G EXEC	6	7 8
9 CMTUG	10	11 HEATH SIG	12 LACC	13	14 CHAOS	15
16	17	18 OSBORNE SIG	19 M3G CHAOS ASM SIG	20	21 M3G PICNIC	22
23	24 UPCO (IBM PC)	25	26 Rosh Hashana CP/M SIG	27	28 APPLE LUG	29
30						

LANSING AREA COMPUTER CLUBS

Apple LUG (Lansing Users Group)

Meets: Last Saturday (1 week earlier in May) 9:30 am
 Lansing Public Library, 401 S. Capitol
 Contact: P.O. Box 27144, Lansing, MI 48902
 353-6880 (days); 351-1516 (evenings)

CCUG (Color Computer Users Group)

Meets: East Lansing Public Library, 950 Abbott, E.L.

CHAOS (Capitol Hill Atari Owners Society) (MC2)

Meets: Third Saturday 9:30 AM
 Lansing Public Library, 401 S. Capitol
 Contact: Ike Hudson 351-3092

CHAOS Assembler SIG (MC2)

Meets: 3rd Thursday
 Contact: Wendell Proudfoot 371-3678

CHAOS BASIC SIG (MC2)

Meets: 1st Wednesday 7:00 PM
 Foster Community Center, 200 N Foster, Lansing
 Contact: Mike Aldrich 394-2412 or Ron Onufer 394-0281

CMTUG (Central Michigan TRS-80 Users Group) (MC2)

Meets: First Sunday, 1 PM
 Library of Michigan, 735 East Michigan, Lansing
 Contact: Sky Tribell 349-1857

LACC (Lansing Area Commodore Club)

Meets: Second Thursday, 7:30 PM
 All Saints Episcopal Church
 800 Abbott, East Lansing
 Contact: Jae Walker (president) 351-7061

M3G (Mid-Michigan Microcomputer Group) (MC2)

Meets: Third Thursday (usually), 7:30 PM
 East Lansing Public Library, 950 Abbott, E.L.
 Contact: Dave Chun 394-6318
 Executive Meetings:

First Thursday, 7:30 PM
 Beggar's Banquet, 218 Abbott, East Lansing

M3G CP/M SIG (MC2)

Meets: Last Thursday, 7:30 PM
 Foster Community Center, 200 N. Foster, Lansing
 Contact: Greg Martin 484-5850

M3G Heath/Zenith SIG (MC2)

Meets: 2nd Wednesday, 7:30 pm
 All Saints Episcopal Church
 800 Abbott, East Lansing
 Contact: Bill Goodwin 349-9657

M3G Osborne SIG (MC2)

Meets: 2nd Wednesday, 7:30 pm
 East Lansing Public Library, 950 Abbott, E.L.
 Contact: Jim Pease 332-8746

TI Users Group

Meets: 2nd Tuesday
 Naval-Marine Corps Reserve Center
 1620 E. Saginaw, Lansing
 Contact: Steve Bennett, 377-1676 (days), 394-1439 (eves)

U.P.C.O. (Users' Personal Computer Organization--IBM PC group)

Meets: 4th Tuesday, 7:30 PM
 Contact: Skip Osterhus 321-3425

Clubs designated (MC2) are members of the Michigan Computer Consortium.

This listing is as accurate as the information we receive. To list an event or update information, contact Joe Werner at 337-7415 (evenings).

ABOUT ENERGY

ENERGY is published monthly by the Michigan Computer Consortium (MC²), P.O. Box 1302, East Lansing, Michigan 48823. **ENERGY** is distributed to members of the computer clubs affiliated with MC², and is sold at finer local retailers.

Unless otherwise noted, material contained in **ENERGY** may be reproduced in part or in whole by any other non-profit organization or for other non-commercial purposes. Acknowledgement should be given to "ENERGY, the Michigan Computer Consortium Magazine", and to the author of the material. Please send a copy of the reprint to MC² at the address above.

ABOUT THE MICHIGAN COMPUTER CONSORTIUM

The Michigan Computer Consortium (MC²) was formed in 1983 to sponsor joint activities involving computer clubs affiliated with MC². Current members of MC² are:

CHAOS (Capitol Hill Atari Owners' Society)
CMTUG (Central Michigan TRS-80 Users' Group)
M3G (Mid-Michigan Microcomputer Group).

Information about each of these clubs is published elsewhere in **ENERGY**.

EDITORIAL BOARD

Dennis Cullinan	(CMTUG)	372-6590
Terry Feichtenbinder	(CoCo)	371-1594
Ike Hudson	(CHAOS)	351-3092
Rob Peck	(CHAOS)	887-0327
Joe Werner	(M3G)	337-7415

ADVERTISING

Advertising in **ENERGY** is an economical way to promote your products or services to a key audience involved in personal computing. Three sizes of ads are available: business card, half-page, and full-page. Advertising space is limited and controlled, so that ads will never get "lost". Camera-ready copy is needed by the 15th of the month preceding publication. For more information, contact the Editor.

ARTICLE SUBMISSIONS

Persons wishing to submit articles are encouraged to do so! Articles may be submitted electronically via CompuNet, or in camera-ready form (3.5 inch columns, 16 characters per inch), or in other forms. Contact any member of the Editorial Board. The deadline for all articles is the 15th of the month preceding publication.



ENERGY = MC²...THE MICHIGAN COMPUTER CONSORTIUM MAGAZINE

TABLE OF CONTENTS

Clubs Data.....	3
Energy Info.....	4
M3G Section.....	5
Heath/Zenith SIG Section.....	6
Osborne SIG Section.....	N/A
CHAOS Section.....	9
CMTUG Section.....	17



SUPPORT OUR ADVERTISERS!!

When you support our advertisers, they support you. If you are planning to make a purchase, then call or stop by and see our advertisers first. Let them know that you are there because of their ad. If an advertiser doesn't have the best price in town, then give them the chance to do better, or look at the services they may be able to provide after a purchase.

If a store doesn't advertise, then let them know that you would like to see their ad in our newsletter. If they hear people tell them, then they will eventually get the point and advertise.

The real question is "Why buy local if you aren't getting any advertising support?" The answer is "I don't know of a good reason."

VIEW FROM THE TOP

by David T.W. Chun
President, M³G

The next meeting is September 20 at 19:30 (7:30 pm), another third Thursday of the month! So far we've been lucky, but don't be surprised if we have to hold the October/November/December meeting on a Wednesday. The topic should be one dear to the hearts of all of us computer buffs. Tim Childs from the Computer Laboratory will be presenting a talk titled, "Horror Stories on the ' ' and other computers". I'll let you fill in the missing three letters. Just because of the nature of the presentation, I expect a very informal format where comments from the floor will be welcomed (I wonder if I should have cleared this with Tim first?), especially those reminiscences with such and such machine that you had to spent a long evening with. Granted, a talk like this would be better placed at the Coral Gables or some similar surroundings than our friendly library, but this gives the under 21's a chance to get in their licks. Should be interesting and I'll see you there.

Well a year has passed since last year and you know what that means. It's time for our Second Annual M³G picnic! Now for the bad news--it will be held outdoors instead of indoors, sorry. This means that only people of the Osborn persuasion will be bringing computers. More details will be forthcoming (eager beavers may contact Lee Hodges who will tell you to contact Cheryl Tirone). While card carrying 'computerphiles' are often held in the public eye as being strange, this is not so. Once a year, even if we need it or not, we have a picnic. At this festive event we integrate with those others. Bring your wife(s), husband(s), friends, and child(rens), but animals are optional (check with Lee). Did I mention that the picnic is open to essentially all the local computer clubs? The date will be announced at the last possible moment (hint--September 22) so you won't be able to think of some other pressing engagement. I will probably see you there (I still rather have it indoors, those mosquitos were big).

Many people have asked me how one gets programs from the CP/M SIG library. I don't know. But when I want to get a particular program I just hand Greg Martin a blank diskette and a list of the programs I would like. So far this has worked for me. Perhaps if Greg was overwhelmed with requests, some other policy will have to be established. The problem seems to be that word of the library has gotten out

and has generated some interest. Since there are only a few CP/M SIG members, this casual exchange of programs has worked. If you have suggestions to improve the distribution of the software, bring them to the next meeting or get in touch with Greg or me.

[P.S. While I haven't talked to Cheryl about it, I'm sure volunteers to help with the picnic will be welcome]

THE USER
by Joe Werner

The IBM PC and other history; Recent news

As I write this, the IBM PC is celebrating its third birthday. IBM introduced the PC on August 14, 1981, ending a considerable amount of speculation and anticipation, and beginning a new era in the personal computer marketplace.

Few industry observers believe that IBM introduced anything revolutionary on that August day. Indeed, there have been many products released before and after that were far more revolutionary. (As examples, consider the MITS Altair, that really started the personal computer industry, or the Apple Macintosh, which operates unlike any other computer you're likely to have used.) So what was it about the IBM PC that makes this date noteworthy?

Certainly, some would point to the three initials, IBM. Many people had adopted a wait-and-see attitude, and the entry of IBM into the market convinced some of those to make the plunge. IBM somehow legitimized the personal computer; even other manufacturers like Apple won some business because of IBM's legitimizing influence.

But IBM also did something else. It released a Personal Computer which, while conservatively designed, was reasonably state-of-the-art. The PC was open-architecture, and invited software and hardware add-ons. The openness of the design also encouraged imitators and look-alikes, all of which could run reasonably all of the software. For software designers, this was heaven-sent.

Consider for a moment the confusion of the CP/M market. Certainly CP/M opened up a tremendous opportunity for software writers, who could write one program to run under CP/M and transport it to a variety of machines. But disk formats varied, from 8 inch soft sector single sided single density, to at least 10 formats of 8 inch double density, to 5.25 inch soft sector, or double density, or 10 hard sectors, or 16 hard sectors, or.... And the rest of the environment of the CP/M systems was also unpredictable. Anyone who wanted to do sophisticated screen-handling techniques had a lot of work to do, since a lot of different terminals were in common use. (Not to mention the hacker who had built his own!) And memory varied from system to system, but could not exceed 64K. Thus, overlays were needed for really sophisticated programs.

The IBM PC was a major step toward solving that. It offered a set of de-facto standards which software designers could use. It offered a larger memory, with

expandability. And systems like Lotus 1-2-3 were the result. Everything VisiCalc was to the Apple, 1-2-3 was for the IBM. But there were other packages besides 1-2-3: everything from WordStar to dBase II to Microsoft Flight Simulator. Software designers fell all over themselves to bring out software for the system -- both because it was a good (note I didn't say great) system for software and because the software people anticipated that IBM would be able to sell enough PCs to make a good (or maybe even great) market for the software. This gave rise to a spiral that is still climbing today.

And IBM hasn't rested on its laurels. It waited until other vendors had proven the market for hard disks and brought out the XT model. It waited until the IRMA board had shown people how nice it is to hook up the PC to an IBM 3270 network, and then introduced the 3270 PC. It introduced the PC/XT 370, to make micro-to-mainframe linkups an all-IBM proposition. And on August 14, 1984, the third birthday of the PC, (and interestingly, shortly after AT&T's big introduction of personal and small business computers), IBM introduced the new PC/AT. The PC/AT is a fantastic step forward for the IBM PC. (The PC/AT is the subject of a report elsewhere in this ENERGY. Be sure to read about it.)

Is the IBM PC a revolutionary machine? I think not. It is a reasonably conservatively designed machine, which did nothing to advance the state-of-the-art. But will the IBM PC be noteworthy in the history of personal computing? Absolutely. It already is.

The local PC Club

Congratulations are in order to Skip Osterhus, M3G member, for being recently elected President of UPCO, the local IBM PC Users Group. Users of the PC, or other related MS-DOS machines, should visit an UPCO meeting. Contact Skip for details. (See the club listing in the front of this Energy.)

Convergent Technologies stumbles

Convergent Technologies has reportedly given up on the Workslate hand-held micro, writing off \$15 Million in the process, giving CT a second quarter loss of \$6.4 Million. Convergent is a strong OEM manufacturer of micros and super-micros, whose devices are sold by Gould, Burroughs, NCR, and other vendors under their own nameplates. With the Workslate, Convergent was trying to sell direct to dealers and end users. It was an effort doomed to failure, in my opinion. That was not CT's market. In an opening line from "The Music Man", "But ya gotta know the territory!".

Convergent Technologies is, however, continuing in the high-end marketplace, with a new large-scale micro under development for AT&T. Look for its release soon. And look for this second quarter loss to be a one-time aberration for an otherwise successful company.

H/Z SIG NEWS

by Bill Goodwin

HUGCON III is now history and the natives are restless! There was some discontent going into the conference with the late delivery of ZDOS 2.0. (The actual version as delivered is 2.13) What came out at the conference just made things worse. ZDOS is still \$150 but does not include anything beyond that required to operate the machine. There is no assembler, linker, lib, cref, or source code for bios. This will come along later (REAL SOON

NOW) at an undisclosed price. (probably another \$150) The new version of BASIC is not included in the op sys package (The way IBM does) so when this arrives it will probably cost the same \$175 the current catalog shows for version 1.1. (In which, incidently, the BEEP command no longer works. I guess it's back to PRINT CHR\$(7)) This means \$475 for what originally cost \$300. There will be a \$50 discount for ZDOS for 1.x owners and the normal HUG 20% discount but that doesn't change the rip-off. There have, apparently, been updates of software that Zenith claims have been the subject of notices sent to owners. The only ones anyone had heard of were the ZDOS 1.25 and CP/M-85 2.2.101 winchester updates that were sent out. There were also updates for Multi-plan and Fortran. No-one had heard of these. The people on the HUG bbs on compuserve have started a letter writing campaign to the President of Zenith Data Systems. The main theme of the messages I've seen is that Zenith is destroying Heath by alienating Heath's traditional market (hobbyists mainly) with their policies. I must say I agree with them. If fact, people seem to be so upset that I am now seeing messages suggesting that the next conference be moved out of the Chicago area, and, I assume, out of the direct presence of Zenith.

While browsing on the Programmer's SIG (go pcs158) recently I saw that TurboPascal will soon have it's own SIG. Borland certainly seems to be a going concern. The word on the bbs is that Modula-2 will be coming soon. No word on the rumor that Turbo-C will be here before the end of the year.

I bought a small baby-board for my -100 that allows switch-selection of normal or fast (7.5 MHZ) 8088 xtals. It works perfectly in mine, but the makers (CDR) say that the older the machine the better the chance of operating. Everything on the 8088 runs 50% faster and screen I/O on the 8085 also runs 50% faster. These are available from Heath stores at \$49.95 with a money-back offer if your machine won't work with it and you don't want to go the trouble of finding the slow chips that are causing the trouble.

The Sept. meeting will be the 12th at the church basement. At this point it appears that several word processors and the diagnostic package will be demoed. It would probably be a good idea to bring formatted ZDOS and CP/M disks in case anyone has software to share.

All right, all right! I'll get down to the main order of business, HDOS 3.0, now!! The three people who are doing the programming under contract from HUG say they will be finished with code and documentation before Christmas. The documentation will not be a new set but will be additional pages for the original HDOS 2.0 manuals. (am I glad now that I kept the HDOS manuals when the H-8 was sold) With a little luck 3.0 could be available for Christmas presents.

XIDEX

PRECISION™ FLEXIBLE DISKS

**PREMIUM
QUALITY**

**5.25"
SSDD
\$18.75/box**



**LIFETIME
GUARANTEE**

**5.25"
DSDD
\$24.74/box**

**FREE FLIP-N-FILE 10 WITH EACH
BOX,
WHILE SUPPLIES LAST.**

Kruse Company

microcomputer division
826 WEST SAGINAW STREET 482-0643 WHITE
PAGES

Is AT for you?
by Skip Osterhus
club member

What is the newest two letter computer from the best known three letter computer company. Why it's AT from IBM. On tuesday August 14, 1984 IBM annouced the most powerful addition to it's personal computer line. Here are some of the facts about that annoucement.

Features	Base model-68	Enhanced model-99
Microprocessor	16/24 bit Intel 80286	16/24 bit Intel 80286
speed	6 mhz	6 mhz
Memory ROM	64KB	64KB
standard RAM	256KB	512KB
expandable	3MB	3MB
Floppy disk	1.2MB	1.2MB
expandable	1.2MB 320/360KB	1.2MB 320/360KB
Fixed disk	none	20MB
expandable	40MB	40MB
System	8 slots	8 slots
standard	1 slot for disk controller	1 slot for disk controller
	(7 unused)	1 slot for I/O (ser/par) (6 unused)
Operating sys	DOS 3.00	DOS 3.00
Cost	\$3,995	\$5,795

You still need some type of monitor for this new computer and IBM still hasn't introduced a new graphics board yet. So you may use your existing IBM monochrome board and monochrome monitor or you may use the graphics board and color monitor. Nothing has changed in respect to the total video situation.

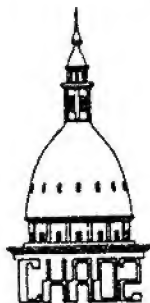
The annoucement covered about 57 products (manuals, cables, sotware, hardware, etc.). Here are some highlights. DOS 3.1, XENIX, TOPVIEW (windows package), BASIC 3.00, Networking, Professional debugging, MACRO assembler 2.00 and many more. I don't really have the time or patience to cover everything annouced so I am going to wrap this up with my first hand impressions.

I first saw the AT at ENTRE on tuesday the 14th at about 12:15 p.m. It was what I had been led to believe

was coming according to PC Week received the day before. I wrote a little program in BASIC and watched a couple sample programs run. It appeared to be faster than the PC or XT but not much. I left not knowing about all of the other annougements IBM made. As I write this article today I have since seen at least some detailed info on just about everthing that was annouced. Some of questions have been answered and many more have not. The bulk of info provided to me was from the staff at Computerland. I watched as they loaded in LOTUS 123 and did a calc and graph of a spreadsheet. I was really surprised at how fast it was. They had a Hercules board in the machine as well as the IBM graphics board. 123 performed flawlessly, fast, and accurate. So did SUPER CALC and so did some of my own custom software I'm writing. IBM appears to have given this machine a high degree of compatibility with it's existing base of software and hardware while still introducing all of the new features.

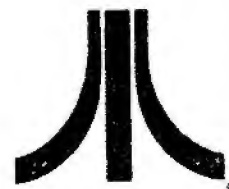
In conclusion here is what I think the future holds. There will be more annougements because it appears not all of the parts to the total network (or multi-user or multi-tasking) have been annouced. The TOPVIEW windowing package looks super and runs on the PC and XT as well. (It has been described as having MACINTOSH like features.) Certainly TOPVIEW is the one of the most exciting pieces of software annouced. I'm convinced that this is the start of the new user interface we can expect from IBM from now on. It may come as soon as the new DOS (I'm referring to 4.0 from Microsoft, DRI, or IBM) is annouced. At this time I'm going to stop because I could easily keep going for hours more because of what I have seen. For me the future is definitely tied into IBM/AT/TOPVIEW. How about you?





C-H-A-O-S. WELCOMES YOU
TO THE WORLD OF THE

ATARI



CHAOS is not affiliated with Atari, Inc.

SEPTEMBER MEETING

The September meeting of CHAOS will be in the Foster Community Center. It will start at 9:00 AM. The topics at that meeting will be many and varied. I say this because I am looking for volunteers to make presentations at this time. If you would like to make a presentation, then give me a call.

Guy Hurt will have copies of all the disks in the library for sale at this meeting. We bought over 300 disks for sale at TARICON and did not sell very many of them. If you have been wanting something from the library but hate waiting, then call Guy now. He has it in stock!

TARICON 84 Success or Failure?

by Ike Hudson

In some ways TARICON 84 was a great success, while in other it was a big disappointment. In either case, it was an education.

The greatest success is that it actually took place. NACE and CHAOS hosted the first annual TARICON in Southfield, Michigan. It should be noted that the Jersey Atari Computer Group and the Peninsula Atari Computer Enthusiasts (Virginia) helped offset the costs by sending money.

It was nice to see representatives from about 20 different user groups at the show. One of the biggest successes of the show was the meeting held to discuss the formation of a national network of Atari User Groups. The discussion at this meeting centered on the declining level of support for the computer user that is coming from Atari. At this meeting it was decided that the user groups should begin to form our own national base. We defined several objectives that centered on communication between groups and with Atari. The emphasis was on maintaining local group autonomy while forming a center for a common and unified voice. This unified voice would then speak with the backing of about 50,000 Atari owners instead of 400 small voices with 10 to 2000 members.

Rob Peck and I will be putting the approved

objectives into a letter with a short questionnaire that will be sent to all of the groups that we have an address for. In essence, this new Atari User Group International will replace the previous User Group Support that tried to function as a part of Atari to assist user groups.

This umbrella group will provide an advocate for user group needs and attempt to educate Atari management on the importance of user group support. Atari needs to realize that most of the Atari computers that have been sold were as a result of word of mouth advertising by us, and not because of the poorly designed advertising that Atari tried. Atari owners educate so stores can sell.

The next good thing coming out of this meeting was the willingness of Gary Nolan from Milatari (Milwaukee) to propose that his group and groups in the Milwaukee/Chicago area sponsor TARICON 85. If he is successful, TARICON 85 will be somewhere in the Milwaukee/Chicago area during October of 1985. I wish him the greatest of success in putting together a consortium of groups to host TARICON 85. Now that the first TARICON has taken place, the second should be a smoother process.

Everyone I talked to about TARICON 84 had good things to say. It was not as large as we had hoped, but it was a good and fun show. The vendors were making enough money to cover their expenses, and most made a profit over expenses. Most of the attendees got some bargains and had a chance to talk to software and magazine authors that were previously only names on paper.

Now for some of the disappointments. The biggest disappointment was that Atari did not come. During my ongoing conversations with Atari personnel, West Shell (marketing manager) was identified as the person who could make a commitment for Atari. When he finally got approval for Atari to come to TARICON, he informed me that he had gotten that approval from Jack Tramiel and that Atari would "be there in a big way." Unfortunately, about 1 1/2 weeks before the show West Shell left Atari. I do not know if Ron Holson or Wendy Weintraub (who knew of this commitment) are or were still at Atari, but no one informed me or anyone working on TARICON that Tramiel had changed his mind.

CHAOS

about supporting TARICOM. Williams Distributing had offered to represent or help represent Atari during my conversations with West Shell. If we had any indication that Atari was backing out, we could have made arrangements for Williams to replace them.

In fact, when Mike Aldrich and I tried to call to see if Atari would need any help setting up, we could not get through to anyone and our calls were not returned. On Friday, Mike got very irate and a secretary finally got BRIAN KEEL to talk to him. KEEL IS HEAD OF SPECIAL EVENTS.

We informed Mike that he knew nothing of TARICOM and Atari would not be attending. For an organization with so few people remaining, they sure don't communicate within the organization.

The next disappointment was the attendance. We started out on Saturday morning with fairly good interest. In fact we had about 40% of the people attending the show arrive in the first 4 hours. It would seem that most of them went home and told friends that Atari would not be coming. An Atari convention without any representation from Atari just did not seem worth attending to many people. I can't fault them for that.

The attendance problem was not totally the fault of Atari. We did not get posters up in the Detroit area, and our requests for Public Service Announcements were seemingly ignored or arrived to late for use by any of the area radio, TV or newspapers. We mailed out PSAs to over 200 media managers. By the time we realized that we were not receiving any publicity, we did not have time to pay for some, and didn't have the money for it anyway.

Money brings us to the final disappointment. We had hoped that we would make enough money to have a small pool of seed money for the next TARICOM. In fact, we lost money. The total losses may go as high as \$2000-\$3000. Even with Mr. Copland's (ATARI) promise of a check for \$500.00 to help cover expenses, the MACE and CHAOS treasuries will suffer. I only hope that Mr. Copland sends the check soon. It would be ashamed if he left Atari before we get the check and nobody there knows about the promise. At this point every little bit will help.

It was an educational experience. Whoever hosts the second TARICOM should find a less expensive facility. They should also get a commitment from other groups to provide cash assistance so their treasury and existence are not threatened as ours is now. They should start now to plan for the next TARICOM. I hope a national umbrella group will be in place to assist with the next TARICOM. This would help us all.

See you all at TARICOM 85?

SEPTEMBER MEETING

FOSTER COMMUNITY CENTER

9:00 AM 15 SEP 84

2ND ANNUAL COMPUTER AUCTION OCTOBER MEETING

by Ike Hudson

Get out those old programs and unused hardware items out, dust them off and test them. The second annual computer auction is coming soon. We will have the auction at the October meeting. I know this would normally be held in September, but it takes time and preparation to have an auction.

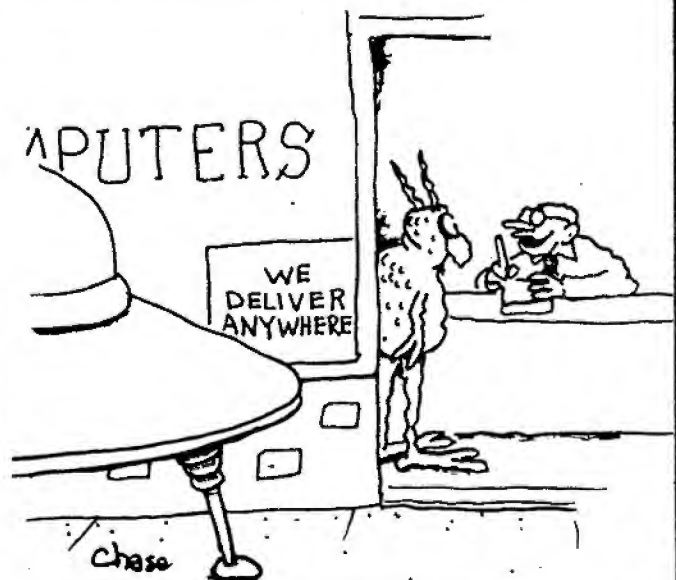
After TARICOM in August, we or at least I need some time to rest. We also need to put out some publicity on the auction and solicit some donations so the club can raise a little money.

The auction will be run the same as last year. All items should be labelled with your name and minimum acceptable bid. Remember, if you place a minimum and the bids don't reach that level you will get the item back, but it will cost you \$2.00 for our trouble. The club will get 10% of the sale price for all items sold.

The club needs donations. The treasury is going to be in very poor shape after we settle our share of TARICOM expenses. This years auction proceeds will hopefully be enough to bring us back into a healthy position.

Stores may donate items to be auctioned, and they may have items auctioned based on the 10% commission. Start soliciting donations for the auction now. Let me know as soon as we have pledges from any stores so I can see that they get as much credit as possible.

Get ready for October. If you don't use it, then sell it to someone who will. If you are looking for that something special for Christmas or Hanukkah then bring your money. There are always some great buys at the Great Computer Auction.



"...and your mailing address, sir?"

Reprinted from Peninsula ACE, VA

CHAOS

Getting Serious about M.U.L.E.

by Ralph Fellows

4 — Smithore

(This is one of a series of articles intended to help you sharpen your M.U.L.E.-playing skills.)

Food and energy keep the planet Irata running. Crystite is a luxury, a cash "crop" for export only. Smithore is probably the hardest commodity to understand. It's vital to development (mules are made of it), but determining how much of it you should produce, and when, is tricky.

The first big fortune in a game of M.U.L.E. -- the one that puts one player thousands of dollars ahead of the rest of the pack -- is usually based on smithore. The Mechtrons understand this, and they will often put out smithore mines in the early turns, even forgoing food and energy. Conservative human players generally concentrate on food, energy, and crystite. Do the Mechtrons know something that we don't?

There's no question about it: a smithore mine on a three-mountain plot is a comfort. In good times or bad, it will produce three or four units of smithore each turn, which can be sold for \$40 to \$50 each. Having this much money coming in turn after turn can make all the difference in getting out mules and purchasing extra food and energy. The pirates never bother you. As long as you keep selling smithore to the store, mule prices will stay low; and if smithore prices start to rise, you're in a perfect position to increase production and cash in.

Still, most humans opt for the flashier crystite in installing their mining mules, leaving smithore to the Mechtrons. I think this tendency is based on the economy-of-scale principle -- 6 crystite mines will produce more units than 3 crystite mines and 3 smithore mines. And, of course, crystite usually sells for more per unit than smithore.

Granted, the First Founder is usually the player with the most crystite plots. But that doesn't mean you have to concentrate on crystite exclusively throughout the game. It makes a lot of sense to put in one or two smithore mines early, to keep the price of mules low and to prevent other players from cornering the market. You can always convert them to crystite later on, when the supply of mules is more stable.

Smithore is a good target for speculation, too, because it doesn't spoil easily. None of it spoils unless you have more than 50 leftover units; then, the units in excess of 50 all spoil. If you're speculating, the spoilage may not be important; but it's something to remember.

The price of mules depends on what happened during the smithore auction on the previous turn. Each mule will cost twice the price paid for the last unit of smithore traded, rounded down to the nearest multiple of \$10. For example, if smithore was traded at \$59, mules will cost \$110.

Note that the price the store paid for smithore is not always the last trading price. If, after everyone else has sold smithore at \$59, one player trots up and buys one unit at, say \$95, mules will cost not \$110 but \$190. Watch out for players who do this!



Bbbauuuu cccaaannn iitt mmmiiixxs
ah drrriinnckk ?!?

CHAOS

Smithore mines are subject to the usual disasters -- planetquakes, meteorites, and so on -- but there's no point in putting out extra mines to try to avoid them. Food and energy are more critical, and it makes sense to try to cushion yourself against bad luck; smithore is hardly ever so important that you should convert a mule of another type to smithore just to protect against chance occurrences.

Percom Double Density Drives ONLY \$200.00

Percom is offering thier Double Density Disk drives for only \$200 while the supplies last. The DD drive with a printer controller is only \$300. If you are interested in putting together a group purchase, then let it be known at the next meeting. We need someone to coordinate this group buy. There is no minus order, but it will require pre-payment. This offer is limited to current stock, so lets get this one going now! If we buy 20 or more the club gets a free drive!

Where is ATARI going? by Ike Hudson

It would seem that no one is very sure of where Atari is going at this time. Some rumors have said that Atari was going to drop the 800XL after Christmas. West Shell assured me that this was not true. West said that Atari was committed to producing and selling the 800XL for at least another year. West Shell also assured me that Atari would be coming out with a new more powerful computer that would be 800XL compatible in the near future. He also told me that Atari would be coming to TARICON "in a big way", but that was BEFORE he left Atari!

Now I wonder how much all that information is worth. We now know how big the Atari splash was at TARICON. Does that mean that Atari will dump the 800XL after Christmas? The 800XL is already selling for \$169-\$179 in Cleveland. The 1950 disk drive is going for \$239 with projections that it will go for about \$199 very soon. A price cut of this magnitude can sometimes predict the future of the computer. Remember the Osborne!

If the 800XL is dumped, will that mean that the new more powerful 800XL compatible will still enter the market? Why should it. if there is no low end computer to compliment it, then why not just introduce a whole new non-compatible line of computers. Then you can have a whole series from low end to high end.

I should also add that West Shell said that the 7800 would definitely be marketed. If we take this little shell game one step further, then we can see the writing on the wall. If this information is as reliable as the rest, then the 7800 is already dead, as it should be!

What can we expect from Atari? My guess is that

WE KNOW ATARI!

We are one of the oldest "Atari Only" mail order businesses, and we have built our reputation on Fast Service, Fair Prices, and above all... Honesty!

Our numerous Flyers and Catalogs will keep you abreast of the latest products for Atari computers, and notify you of our "Super Specials" (Up to 70% off!). Send us your name and address for Free Flyers, or \$1 for our Giant Catalog (Refundable with purchase).

FREE CATALOG

WITH ANY PURCHASE OR SEND
\$1.00 (REFUNDABLE WITH PURCHASE)

This is the most comprehensive Atari-Only reference catalog ever produced. It contains over 3000 software and hardware listings with illustrations and descriptions.



If you don't have our catalog, you're missing out!

COMPUTER PALACE

OPEN 10-6, 10-4 Sat 10-4 (Phone Order)
2160 W. 11th Avenue Eugene, Oregon 97402



USE YOUR CREDIT CARD & CALL
Toll Free 1-800-452-8013
★ ORDERS ONLY, PLEASE ★

There's never a penalty for using your credit card!
For information, Call (503) 643-5361



CHAOS

Traniel will dump the 800XL. The price should reach about \$149 for the 800XL and \$189 for the 1050 in the next three months. The new computer introduced by Traniel will be cheap and have a lot of K, but will lack any defined compatibility with anything that currently exists. It will be marketed on a low cost basis, and it may even work sometimes. Quality control will not be a problem, since they were layed off.

What lies ahead for the Atari computer owner? This one is wide open. I suggest that you get involved with a common support system. It may be the only support you receive. Watch what Traniel does, but be wary of what he or his subordinates say. Actions always speak much louder than words. In the case of the new Atari Corporation this will be even more so.

You may be wondering if I have given up on Atari. I must admit that I am close. I like the Atari computers. I know they can be improved with compatibility built in. I also know that Atari has many of those improvements locked away. Even the current management is not aware of what improvements already exist in their own files and storage rooms. I like my Atari and will continue using it, even after it is obsolete and no compatible machine is being marketed. I may begin looking for another machine to do my serious work on and to stay current with the state of the art. I will not buy any ATARI machine that does not offer a reasonable degree of compatibility with my 800. I will consider an upgrade to a compatible, more powerful machine!

If Atari stays compatible in their new machines (which I doubt), then I wish them the best and will continue to support them and help my friends to select Atari computers. If they do not, then I will be the first to suggest going to a more stable company that is likely to provide upward compatibility to their users. COMPATIBILITY is a word that too many manufacturers are ignoring.

Home Financial Database

Reviewer: Ralph Fellows
from Richard J. Kalagher
Retail Price: Program is free;
Documentation costs \$20.00.

This is release 2.3 of a home-finance package. If you have trouble keeping track of where your money goes, this program won't help you much -- you need better spending and recording habits. If you already know where your money goes, this program will let you keep an on-line log and generate various summaries.

The program requires a disk drive and a Basic cartridge. A printer (for hard-copy reports) is desirable but not mandatory.

The program has two interesting features: introductory documentation comes on the disk, and the product is free. (The CHAOS library has permission to make and

distribute copies.) To get full benefits from it, however, you'll have to order the printed documentation for an additional \$20.00.

Mr. Kalagher's claim that this program will be useful to small businesses is exaggerated. There is a time-tested and well-known system called "double-entry bookkeeping" to which accountants, bankers, and tax people are very partial. Prospective businesspersons would do well to learn it -- classes and self-instruction books are widely available. Programmers that write financial software would do well to design their packages around it. Mr. Kalagher would do well to keep all this in mind for release 2.4.

SynChron

Reviewer: Ralph Fellows
from Synapse.
Retail Price: ???

Summary

A computerized appointment book. Nice graphics, but does little that you couldn't do equally well with pencil and paper. Interesting but not very useful.

Details

SynChron allows you to keep track of appointments and important dates on a floppy disk. It also allows you to sort them based on keywords of your own choice (birthdays, weddings, whatever) and to print off summaries and schedules.

Each disk can hold up to two years' worth of events.

Opinions

Peter McWilliams and I agree: don't use a computer for a job that you can do perfectly well by hand. A cheap appointment book and a pencil will do almost everything for you that SynChron does.

A really good computerized appointment system ought to be able to carry birthdays and anniversaries over into next year automatically, to schedule "first Monday of each month" events, and handle items like vacations that stretch over more than one day. SynChron can't do any of these. There must be better ways you can spend your money -- why waste it on this product?

SEPTEMBER MEETING

FOSTER COMMUNITY CENTER
9 AM 15 SEP 84.

OCTOBER MEETING

AUCTION
FOSTER COMMUNITY CENTER
9 AM 20 OCT 84

Jerry's OOPS sale Midwestern Technical Products

301 MAC Ave. East Lansing, MI 48910 332-7858

Software:

Multimate for IBM-PC \$407.00
Excalibur (CP/M 86) \$419.00 each volume
Spellgard 886 \$160.00 for Zenith Z-90

COMPUTERS

CONVERGENT TECHNOLOGIES AWS workstation
with operating system, \$6,500
SHARP PC 5000 (MS-DOS) portable computer
with software, \$1,795.00

Monitors:

Taxan 210 \$301.00
Apple RGB or Composite IBM
Sanyo or BMC Green \$91.50

Misc:

US Robotics 212A Modems
Autolink 212A \$440.00
Autodial 212A \$516.00
Techmar *20030 \$339 for IBM-PC
Columbia
Video board, color & mono graphics \$186.00
Symtec
Light Pen for IBM-PC w/software \$117.60
Memorex
8" disks for IBM 3741 soft sector \$20.00
Keytronics
Keyboard KB5150 \$195.00
Smoked plastic disk boxes \$2.95

CHAOS

Getting Serious about M.U.L.E.

by Ralph Fellows

5 -- Crystite

(This is one of a series of articles intended to help you sharpen your M.U.L.E.-playing skills.)

Food, energy, and smithore are all vital to the successful development of the colony. Crystite is an export-only commodity.

The winner in a game of M.U.L.E. is usually the player with the most crystite mules. The ideal setup would be to get all possible plots converted to crystite, achieving the maximum economies of scale. The Mechtrons often do exactly that -- sometimes too early, leaving themselves short of food and energy. Human players should try to arrive at this setup on turns 11 or 12.

Pirates can make a great deal of difference in the effectiveness of mining crystite. If the pirates never come, the winner is almost certain to be a crystite miner. If they come twice late in the game, the game may go to someone specializing in another commodity. But they don't often come twice late in the game, so the sensible strategy is to get out as many crystite mines as possible.

Crystite is distributed in a predictable way around the three-dot plots. There are four two-dot plots -- one above, one below, one to the right, and one to the left -- and four one-dot plots -- in the four diagonal directions. Of course, the river, the town, the edge of the map, meteorite strikes, and other three-dot plots can obscure this pattern. Furthermore, there are usu-

ally a few isolated one-dot sites scattered randomly around the board with no connection to any higher-production plots. Still, keep your eyes open. If one player finds a good (that is, two- or three-dot) crystite site, there are others nearby.

Does it make sense to prospect for crystite? The Mechtrons certainly think so. But unless your reflexes are as good as a Mechtron's, I don't recommend assaying any plots except the ones you own -- there are three other players, after all, and if you find something good, the odds are three to one that you won't be the one that claims the plot. (Assaying other players' land is downright stupid.)

Normally, it is best to try to keep your plots adjacent to one another. Crystite is the exception to this rule. If one player discovers a good crystite plot, the other players must jump in and try for the plots nearby, even if they're miles away from their other plots. If one player is able to claim six or seven adjacent crystite plots, the other players can head for the barn -- the game is effectively over.

Like smithore, crystite spoils only if you have more than 50 leftover units; then the units in excess of 50 all spoil. Keep this in mind if you're speculating -- nothing is more annoying than to buy a huge bundle of crystite at \$68, only to see it spoil on the next turn when the price is \$144.

Crystite mines are subject to the usual disasters, but there's no point in putting out extra mines to try to avoid them. You normally put out all the crystite mines you can manage anyway -- how can you put out any more?

PRESIDENTIAL RESIGNATION

BY IKE HUDSON

As of the September meeting I am submitting my resignation. I feel responsible for leading the club into a commitment to TARICON that has virtually devastated our treasury. By the September meeting we will know exactly how much the CHAOS share of the loss is. I expect that we will incur a loss of about \$500. That is not acceptable to me and should not be acceptable to the membership.

I must tender my resignation for consideration by the membership. It will be up to you to accept it or reject it. This will be a basic vote of confidence. If the membership feels as I do, that the losses are

unacceptable, then I will step aside and support the new president. If the membership does not want to accept my resignation, then I will continue to serve. I will not continue if even a small portion of the membership feels that I should not. I do not want to create division or factions within the membership. We have a very cohesive group. We work well together. This must continue. If it requires new leadership to continue as a cohesive group, then I am prepared to step aside and become a supportive member.

The success or failure of TARICON is a judgement call. There are positives and negatives. The loss of money is the biggest negative. The only way we will be able to continue functioning will be if we have very good library sales in September and a great auction in October. I will act as auctioneer in October unless the new president has other plans.

CMTUG

CMTUG UPDATE

by Dennis C. Cullinan

Well, folks, the summer hiatus for CMTUG meetings is over, and there WILL be a September meeting on Sunday the 9th at 1:00 PM in the Library of Michigan's InfoTech Center. As I have written in these pages before, our featured speaker will be longtime member Greg Martin, on a topic near and dear to his heart: CP/M. Greg is MSB's CP/M SIG leader and has acquired a huge library of public domain programs. These are available to CMTUG and/or MSB members in a wide variety of disk formats, for a nominal reproduction charge. If you have CP/M capability or are thinking of tooling up for it, Greg's talk will be one you won't want to miss.

The September meeting will also feature a continuation of a practice we began last spring, of awarding a door prize to one lucky member in attendance. These door prizes are never identified beforehand, and usually do not have a huge dollar value, but they are always worth having. Incidentally, if you have some micro item you'd like to donate as a door prize, please contact me (372-6590 home; 373-7513 work). If you are a merchant making such a donation, that fact will be announced at the meeting and also published in *Energy*.

My trusted informant on Tandy secrets reveals that a Model 1200 computer is in the wings. This will be a 99.44% IBM PC compatible machine with a ten meg hard drive, 128K RAM, using MS-DOS and XENIX. The price is expected to be under \$3000, but note that it will run every bit as slow as the IBM it seeks to imitate. This new product should be announced in a month or two.

The Model 2000 will also get an upgrade of sorts as Tandy starts employing the Intel 80286 CPU in place of the 80186. This move will preserve an operational parity with IBM's new AT PC just announced. The AT (which uses the 80286) can be expanded to 3 Megs of RAM, so I expect Tandy's 2000 will move into that ballpark too.

The good folks at Computer Options in Charlotte tell me they've discovered that the whole set of software usually bundled with the Sanyo MBC-555 micro (WordStar, etc.) will run unaltered on the Model 2000. Of course, unless you've got 360K drives in the Sanyo you can't expect much readability of Model 2000 disks, but any kind of compatibility between different brands is intriguing, especially when one of them costs less than \$1000.

Speaking of the Sanyo, it sure seems to me that there might be some interest and need for an MBC-555 user group or SIG in this area. A number of local dealers report that the 555s are practically flying off their shelves. I hear there is a new magazine supporting Sanyo users, and there should be a lively interest in identifying those IBM PC programs which will run unaltered. If any of you out there would like to participate in a Sanyo user group, or if you know of one already in operation in this area, please contact me at the number(s) above. I offer my organizational skills and the Library's InfoTech Center as a meeting place (there is an MBC-555 there). Pass the word.

IBM PC
FILE
COMPATIBLE

NOW! WITH *DOUBLE-SIDED* DRIVES

ALSO INCLUDES MS-DOS 2.1

THE MS-DOS WITHOUT A MORTGAGE

FULL
DEALER
SUPPORT

128K SANYO MBC-550
2 DISK DRIVES

INCLUDES WORDSTAR, CALCSTAR, EASYWRITER & MS-DOS

only \$995

COMPUTER OPTIONS

CHARLOTTE MI (517) 487-8883 or (517) 543-0030

COLOR
GRAPHIC
CAPABILITY

SAVE
OVER 20%

MODEL I WORLD

by Jeutonne Brewer

(reprinted from GEMS Newsletter, August 1984)

Is there life for the Model I after the Model III, 4 and 4P? In "The Model I: Staying Alive," the editor of *80 MICRO* (January 1984) commented on the future of the Model I. This article estimates that 250,000 of the 300,000 Model I sold are still being used and will be for some time to come. It concludes that "age may not count for much in the computer industry, but 250,000 owners pack some clout." Remember that our very efficient bulletin board is provided through the services of a Model I. That four-year, seven-day-a-week, 24 hour a day service is a clear signal of the long term reliability of the machine. It will be interesting to see how many of the new micros appearing daily in the market can match this record in the future.

I will start with some thoughts about compatibility. Because the Model I is no longer manufactured, every Model I owner will at some point face the issue of compatibility between the Model I and another computer, such as the Model III or 4.

When Chris and I added a Model III companion for the Model I, the question of how to make the two machines work together became important to me. I was using the Model I in my office and the Model III at home; therefore I wanted to be able to take a disk home to continue the work. The first part was no problem; I could convert the Model I file, using Model III TRSDOS. However, I couldn't take the disk and the file back to the Model I; once the file was in the Model III double density world, there was no way to move it back to my Model I single density world.

Even with double density on the Model I, you will have a problem. TRSDOS on the Model III will not read Model I double density. Of course, there are other operating systems available, probably the best selection available for any kind of 8-bit microcomputer.

I solved the problem of compatibility by choosing (and buying) DOSPLUS 3.4 as the operating system for both the Model I and the III. By using this DOS on both machines, I can take a disk out of one machine and read and write to it in the other. The commands are the same on both machines; you won't notice the difference. Many programs will run on either machine, although in some cases different versions of a program must be bought (for example, NewScript, Data Writer). Still, data disks can be used on either model. Sometimes the vendor will give you a special price on the second version of a program if you need it. Software Options charged me \$50 for a second version of Data Writer, a database management program. The Lazy Writer people (Alpha Bit Communications) sent me both versions at no extra cost. ProSoft is charging \$25 for the second version of AllWrite! (their successor to NewScript). They have versions for Model III, 4, or the Lobo Max80.

Other DOSs like Multidos, Newdos80 2.0, and LDOS will also provide compatibility. One advantage of DOSPLUS 3.4 and Multidos is that they require no installation of various kinds of drivers for printers, the keyboard and screen. You simply put the operating system disk into drive 0 and go to work. DOSPLUS will read and write data to a Multidos disk; Multidos will read and write to DOSPLUS, Newdos80 and TRSDOS disks. Newdos requires you to specify the drive characteristics for Model I and the Model III. I was never able to understand the instructions in the manual for setting the PDRIVE specs. However, others have found Newdos80 to be a very useful and flexible DOS; it provides important features for programmers. DOSPLUS 3.5 and LDOS

require you to go through a series of installation procedures. The choice of an operating system, like the choice of a word processing program, is a matter of your preferences and particular needs. The point is that most programs are available for both the Model I and the III (and thus the Model 4 in Mod III mode).

How many Model I owners do we have out of the estimated 250,000? I have learned in recent years that being dated is not the same as being obsolete. My Model I still performs efficiently all the tasks I ask of it. I have thought about selling it, but then I ask myself why I should sell a machine that still performs efficiently and reliably. What do you think?





RITE WAY

CASH REGISTERS • COMPUTERS

GRAND OPENING

STORE NO. 4

SHOP
US
LAST!

**STORE
NO. 4**

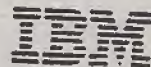
SOFTWARE & HARDWARE

FOR



APPLE

commodore



IBM Compatibles



ZENITH

COLUMBIA

DATA PRODUCTS, INC.

**LEADING
EDGE**

IBM Compatible
CP/M Compatible
Chameleon by Seequa™

**SEEUQA
COMPUTER
CORPORATION**



Come in and see Chameleon today.

THOUSANDS OF SOFTWARE
PROGRAMS IN STOCK!

SAVE **BIG**
ON ALL
SOFTWARE & HARDWARE

MONITORS
DISK DRIVES
PRINTERS
SOFTWARE
MODEMS
COMPUTER PAPER

HIGH
PERFORMANCE
FLOPPY DISK

\$1.59

5 1/4" Diskettes for
popular personal
computers.

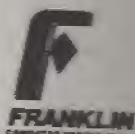


ATARI
800XL



• memory
64K RAM
24K ROM (operating system
plus ATARI BASIC Program-
ming Language)

• keyboard
Full-stroke design
62 keys, including HELP key
and 4 special function keys
International character set
29 graphics keys



INDUS
SYSTEMS

stair
MICROSYSTEMS INC.

YOUR ONE STOP MARKETPLACE
FOR ALL YOUR COMPUTER NEEDS.

OPEN MONDAY THRU FRIDAY 10-9, SATURDAY 10-6

RITE WAY ENTERPRISES INC.

COMPUTERS • SOFTWARE • CASH REGISTERS
SALES • SERVICE • SUPPLIES

(313) 751-2454	(313) 562-3178	(313) 559-2980	(313) 483-5410
8262 12 MILE RD.	22027 MICHIGAN AVE.	19783 12 MILE RD.	1514 WASHTENAW
WARREN, MI. 48093	DEARBORN, MI. 48124	SOUTHFIELD, MI. 48076	YPSILANTI, MI. 48197

(313) 483-5410
1514 WASHTENAW
YPSILANTI, MI. 48197



CONSULT TECH

CORPORATION

517-351-1899

Independent Systems Consultants

Frank Dolinar, CDP, Director

- System Design and Development
- Software/Hardware Evaluation & Selection
- Education, Seminars, and Staff Training
- Documentation

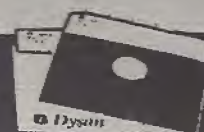


Premium diskettes
at a discount !

Authorized
DYSAN Dealer

dy Jan **Dysan.**

Precision Magnetic Media



644 Sunset, PO Box 886, East Lansing, MI 48823 517/351-1899

formerly in Cybernetic Frontiers

ENERGY

The Michigan Computer Consortium Magazine
Dennis C. Cullinan, Editor
Box 1302
East Lansing MI 48823

BULK RATE
U.S. POSTAGE
PAID

EAST LANSING MI 48823
PERMIT 181